TORQ Analysis of Computer Programmers to Computer Systems Analysts

INPUT SECTION:

Transfer	Title	O*NET	Filters		
From Title:	Computer Programmers	15-1021.00	Abilities:	Importance LeveL: 50	Weight: 1
To Title:	Computer Systems Analysts	15-1051.00	Skills:	Importance LeveL: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

OUTPUT SECTION:

Grand TORQ: 86

Ability TORQ	Skills TORQ	Knowledge TORQ
Level 90	Level 78	Level 91

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Speech Recognition	46	9	65
Mathematical Reasoning	46	11	50
Speech Clarity	44	7	62
Perceptual Speed	39	5	50

Upgrade These Skills

Skill	Level	Gap	Impt
Quality Control Analysis	74	26	74
Service Orientation	67	24	74
Time Management	75	22	74
Judgment and Decision Making	72	22	71
Monitoring	72	12	74
Coordination	71	9	72
Equipment Selection	67	5	70
Active Listening	68	3	79
Reading Comprehension	73	2	86
Troubleshooting	71	1	76
Systems Analysis	65	1	72

Knowledge to Add

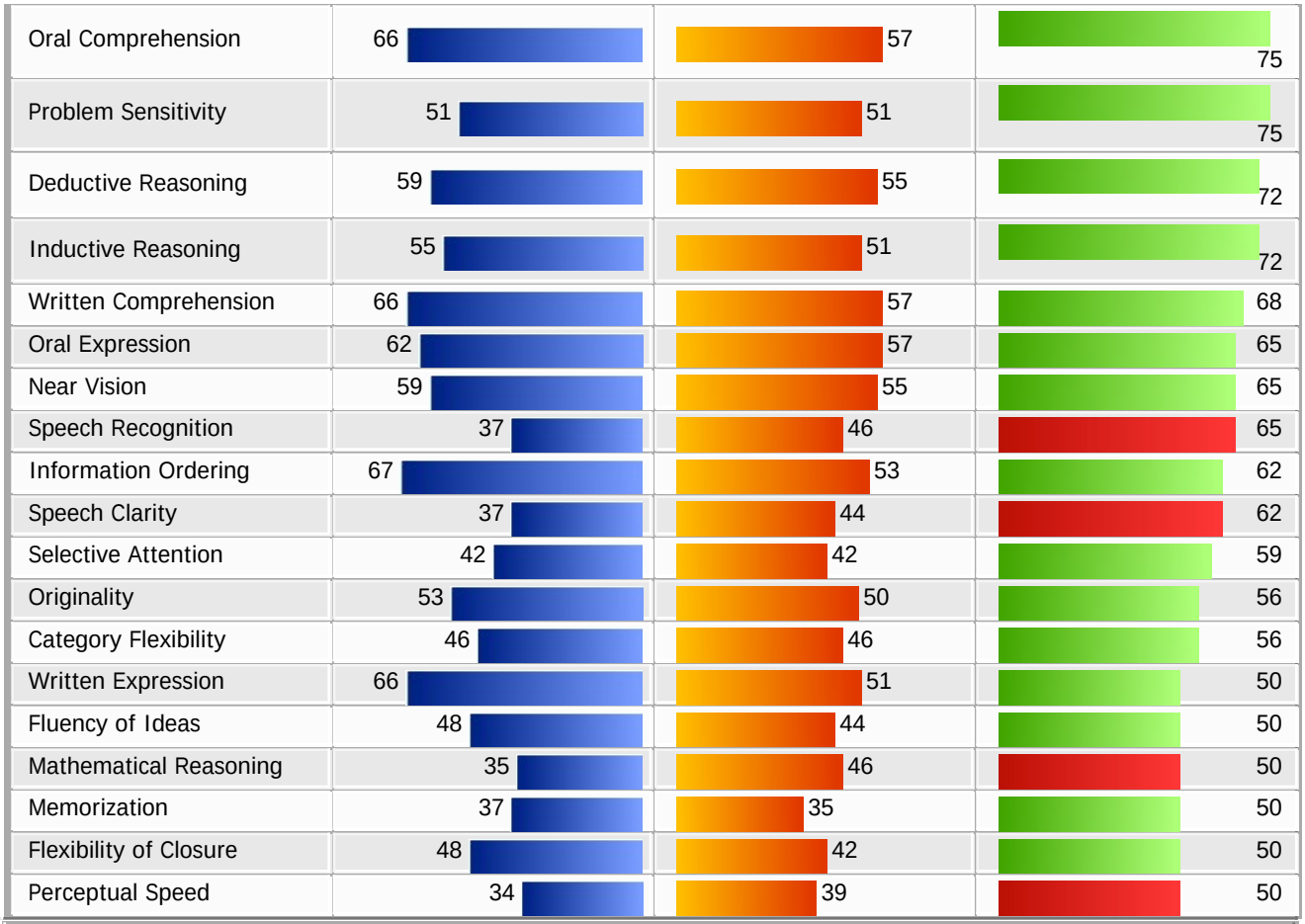
Knowledge	Level	Gap	Impt
English Language	62	4	72

LEVEL and IMPT (IMPORTANCE) refer to the Target Computer Systems Analysts. GAP refers to level difference between Computer Programmers and Computer Systems Analysts.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Computer Programmers	Computer Systems Analysts	Importance



Skill Level Comparison - Abilities with importance scores over 69

Description	Computer Programmers	Computer Systems Analysts	Importance
Active Learning	77	73	88
Reading Comprehension	71	73	86
Critical Thinking	82	71	84
Complex Problem Solving	74	72	84
Active Listening	65	68	79
Troubleshooting	70	71	76
Monitoring	60	72	74
Service Orientation	43	67	74
Quality Control Analysis	48	74	74
Time Management	53	75	74
Coordination	62	71	72

Systems Analysis	64	65	72
Technology Design	66	64	71
Judgment and Decision Making	50	72	71
Equipment Selection	62	67	70
Learning Strategies	71	65	69

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Computer Programmers	Computer Systems Analysts	Importance
Computers and Electronics	89	86	87
English Language	58	62	72

Experience & Education Comparison

Related Work Experience Comparison

Description	Computer Programmers	Computer Systems Analysts
10+ years	20%	2%
8-10 years	0%	0%
6-8 years	2%	5%
4-6 years	0%	54%
2-4 years	34%	37%
1-2 years	29%	0%
6-12 months	3%	0%
3-6 months	0%	0%
1-3 months	5%	0%
0-1 month	0%	0%
None	3%	0%

Required Education Level Comparison

Description	Computer Programmers	Computer Systems Analysts
Doctoral	17%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	0%	2%
Post-Bachelor Cert	0%	0%
Bachelors	63%	62%
AA or Equiv	4%	2%
Some College	10%	0%
Post-Secondary Certificate	0%	31%
High Scool Diploma or GED	0%	1%
No HSD or GED	3%	0%

Computer Programmers	Computer Systems Analysts
Most Common Educational/Training Requirement:	
Bachelor's degree	Bachelor's degree
Job Zone Comparison	
4 - Job Zone Four: Considerable Preparation Needed	4 - Job Zone Four: Considerable Preparation Needed
A minimum of two to four years of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.	A minimum of two to four years of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.
Most of these occupations require a four - year bachelor's degree, but some do not.	Most of these occupations require a four - year bachelor's degree, but some do not.
Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.

Tasks

Computer Programmers

Core Tasks

Generalized Work Activities:

- Interacting With Computers - Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
- Organizing, Planning, and Prioritizing Work - Developing specific goals and plans to prioritize, organize, and accomplish your work.
- Making Decisions and Solving Problems - Analyzing information and evaluating results to choose the best solution and solve problems.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Updating and Using Relevant Knowledge - Keeping up-to-date technically and applying new knowledge to your job.

Specific Tasks

Occupation Specific Tasks:

- Assign, coordinate, and review work and activities of programming personnel.
- Collaborate with computer manufacturers and other users to develop new programming methods.
- Compile and write documentation of program development and subsequent revisions, inserting comments in the coded instructions so others can understand the program.
- Conduct trial runs of programs and software applications to be sure they will produce the desired information and that the instructions are correct.
- Consult with and assist computer operators or system analysts to define and resolve problems in running computer programs.
- Consult with managerial, engineering, and technical personnel to clarify program intent, identify problems, and suggest changes.
- Correct errors by making appropriate changes and rechecking the program to ensure that the desired results are produced.
- Investigate whether networks, workstations, the central processing unit of the system, or peripheral equipment are responding to a program's instructions.
- Perform or direct revision, repair, or expansion of existing programs to

Computer Systems Analysts

Core Tasks

Generalized Work Activities:

- Interacting With Computers - Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
- Processing Information - Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data.
- Making Decisions and Solving Problems - Analyzing information and evaluating results to choose the best solution and solve problems.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Updating and Using Relevant Knowledge - Keeping up-to-date technically and applying new knowledge to your job.

Specific Tasks

Occupation Specific Tasks:

- Analyze information processing or computation needs and plan and design computer systems, using techniques such as structured analysis, data modeling and information engineering.
- Assess the usefulness of pre-developed application packages and adapt them to a user environment.
- Confer with clients regarding the nature of the information processing or computation needs a computer program is to address.
- Consult with management to ensure agreement on system principles.
- Coordinate and link the computer systems within an organization to increase compatibility and so information can be shared.
- Define the goals of the system and devise flow charts and diagrams describing logical operational steps of programs.
- Determine computer software or hardware needed to set up or alter system.
- Develop, document and revise system design procedures, test procedures, and quality standards.
- Expand or modify system to serve new purposes or improve work flow.
- Interview or survey workers, observe job performance or perform the job to

expansion of existing programs to increase operating efficiency or adapt to new requirements.

- Perform systems analysis and programming tasks to maintain and control the use of computer systems software as a systems programmer.
- Prepare detailed workflow charts and diagrams that describe input, output, and logical operation, and convert them into a series of instructions coded in a computer language.
- Train subordinates in programming and program coding.
- Write or contribute to instructions or manuals to guide end users.
- Write, analyze, review, and rewrite programs, using workflow chart and diagram, and applying knowledge of computer capabilities, subject matter, and symbolic logic.
- Write, update, and maintain computer programs or software packages to handle specific jobs such as tracking inventory, storing or retrieving data, or controlling other equipment.

Detailed Tasks

Detailed Work Activities:

- adjust computer operation system
- analyze workflow
- assist co-workers with software problems
- communicate technical information
- configure computers in industrial or manufacturing setting
- consult with customers concerning needs
- consult with managerial or supervisory personnel
- design computer hardware or software interface
- design computer programs or programming tools
- develop computer performance standards
- develop mathematical or computer languages
- develop or maintain databases
- develop records management system
- develop tables depicting data
- direct and coordinate activities of workers or staff
- distinguish details in graphic arts material
- encode equations for processing
- evaluate computer system user requests or requirements
- follow data security procedures
- follow data storage procedures
- identify color or balance
- implement computer system changes
- install computer programs

determine what information is processed and how it is processed.

- Prepare cost-benefit and return-on-investment analyses to aid in decisions on system implementation.
- Provide staff and users with assistance solving computer related problems, such as malfunctions and program problems.
- Read manuals, periodicals, and technical reports to learn how to develop programs that meet staff and user requirements.
- Recommend new equipment or software packages.
- Review and analyze computer printouts and performance indicators to locate code problems, and correct errors by correcting codes.
- Specify inputs accessed by the system and plan the distribution and use of the results.
- Supervise computer programmers or other systems analysts or serve as project leaders for particular systems projects.
- Test, maintain, and monitor computer programs and systems, including coordinating the installation of computer programs and systems.
- Train staff and users to work with computer systems and programs.
- Use object-oriented programming languages, as well as client and server applications development processes and multimedia and Internet technology.
- Utilize the computer in the analysis and solution of business problems such as development of integrated production and inventory control and cost analysis systems.

Detailed Tasks

Detailed Work Activities:

- adjust computer operation system
- analyze business, scientific, or technical problems in electronic data processing systems
- analyze programs using workflow chart or diagram
- analyze workflow
- communicate technical information
- conduct training for personnel
- confer with management or users
- consult with customers concerning needs
- consult with staff or users to identify operating procedure problems
- create mathematical or statistical diagrams or charts
- design computer hardware or software interface
- design computer programs or programming tools
- design control systems

- maintain client-server database
- maintain or repair computers or related equipment
- monitor computer operation
- prepare instruction manuals
- prepare technical reports or related documentation
- prepare workflow chart
- program computers for electronic engineering applications
- program computers for management analysis applications
- program computers for medical applications
- program computers for social science applications
- program computers using existing software
- program mainframe computer
- provide customer service
- provide technical computer training
- provide technical support to computer users
- recommend software or hardware purchases
- resolve computer program operational problems
- resolve symbolic formulations in data processing applications
- revise or correct errors in computer programs, software, or systems
- supervise programming personnel
- test computer programs or systems
- test data communications hardware or software
- use computer application flow charts
- use computer graphics design software
- use computer programming language
- use computers to enter, access or retrieve data
- use creativity in graphics
- use differential equations in computer programming
- use geographical information system (GIS) software
- use graphic arts techniques
- use interpersonal communication techniques
- use knowledge of mainframe computers
- use object-oriented computer programming techniques
- use project management techniques
- use relational database software
- use spreadsheet software
- use structural analysis techniques to analyze computer systems
- use word processing or desktop

- design data processing systems
- design data security systems
- design systems in cooperation with colleagues
- develop mathematical simulation models
- develop or maintain databases
- develop records management system
- develop tables depicting data
- encode equations for processing
- evaluate computer system user requests or requirements
- evaluate prototype computer software systems
- follow data security procedures
- follow data storage procedures
- implement computer system changes
- install computer programs
- maintain client-server database
- maintain or repair computers or related equipment
- make presentations
- monitor computer operation
- operate computer networks
- prepare technical reports or related documentation
- prepare workflow chart
- program computers for electronic engineering applications
- program computers for management analysis applications
- program computers for medical applications
- program computers for social science applications
- program computers using existing software
- program mainframe computer
- provide technical computer training
- provide technical support to computer users
- recommend software or hardware purchases
- resolve computer program operational problems
- resolve symbolic formulations in data processing applications
- revise or correct errors in computer programs, software, or systems
- select business applications for computers
- supervise programming personnel
- test computer programs or systems
- train workers in use of equipment
- use computer application flow charts
- use computer networking technology
- use computer programming language
- use computers to enter, access or retrieve

- use word processing or desktop publishing software
- write computer software, programs, or code
- write documentation for computer programming

Technology - Examples

Analytical or scientific software
- SAS software
- Simulation program with integrated circuit emphasis SPICE

Application server software
- Application server software
- IBM WebSphere

Charting software
- Microsoft Office Visio

Compiler and decompiler software
- Code generator software
- Command interpreters
- Compilers
- Decompilers
- Incremental compiler software
- Inline code expander software
- Interpreter software
- Just-in-time compiler
- Mixed code generator
- One pass compiler software
- Partial class generator software
- Retargetable compiler
- Stage compiler
- Threaded code compiler
- Xerces2 Java Parser

Configuration management software
- IBM Rational ClearCase
- Revision control software

Content workflow software
- Workflow software

Data base management system software

data
- use cost benefit analysis techniques
- use geographical information system (GIS) software
- use interpersonal communication techniques
- use interviewing procedures
- use knowledge of mainframe computers
- use object-oriented computer programming techniques
- use project management techniques
- use relational database software
- use spreadsheet software
- use structural analysis techniques to analyze computer systems
- write business project or bid proposals
- write computer software, programs, or code
- write documentation for computer programming
- write technical specifications for computer systems, software or applications

Technology - Examples

Access software
- Access management software

Administration software
- Element management software

Analytical or scientific software
- Hierarchical simulation program with integrated circuit emphasis HSPICE
- SAS software
- Statistical software
- Structure prediction software

Application server software
- IBM WebSphere

Backup or archival software
- Backup and archival software
- System and data disaster recovery software

Charting software
- Microsoft Office Visio

Compiler and decompiler software
- Time sharing option TSO software

Computer aided design CAD software
- Computer aided design CAD software
- Electronic design automation EDA software

- CAST SQL Builder
- Computer Associates integrated data management system CA-IDMS
- Data definition language DDL
- Data manipulation language DML
- dBase Plus
- IBM DB2
- Microsoft Access
- Microsoft SQL Server
- mSQL software
- MySQL software
- Oracle procedural language/structured query language PL/SQL
- Pick software
- Relational database management software
- Sybase SQL Server

Data base reporting software

- ReCrystallize Crystal Reports

Data base user interface and query software

- Structured query language SQL

Development environment software

- A programming language APL
- Activity based costing ABC
- Ada
- Adobe Systems Adobe PostScript
- Algorithmic language ALGOL
- American National Standards Institute ANSI C
- Assembler
- AWK
- B
- Basic combined programming language BCPL
- Beginner's all-purpose symbolic instruction code BASIC
- Borland Delphi software
- C
- OrCAD Capture
- Spectra Quest software

Configuration management software

- Application management software
- Automated installation software
- Configuration management software
- HyperSpace software
- IBM Rational ClearCase
- InstallShield software
- Patch and update management software
- Software distribution software
- Systems and application deployment and migration software
- Wise Solutions software
- Wise Solutions Wise for Windows Installer

Data base management system software

- Database management software
- IBM DB2
- Microsoft Access
- Microsoft SQL Server
- MySQL software
- Oracle DBMS
- Oracle procedural language/structured query language PL/SQL
- Relational database management software
- Sybase SQL Server

Data base user interface and query software

- IBM Rational ClearQuest
- Software asset management SAM software
- Structured query language SQL

Data conversion software

- Data conversion software

Desktop communications software

- CrossTec NetOp Remote Control
- Remote control software

- Class oriented ring associated language CORAL
- Clipper
- CLU
- Code munger software
- Combined programming language CPL
- Common business oriented language COBOL
- Eclipse software
- Extensible markup language XML
- Extensible stylesheet language XSL
- Flow-Matic
- Formula translation/translator FORTRAN
- FORTH
- Haskell
- Icon
- Interface definition language IDL
- J
- Kernel
- List processing language LISP
- Logo
- Microsoft .NET Framework
- Microsoft Extensible Application Markup Language (XAML)
- Microsoft Visual Basic
- Microsoft Visual Basic Scripting Edition VBScript
- Microsoft Visual Studio
- ML
- MUMPS M
- Parlog
- Pascal
- Programming language one PL/I
- Prolog
- Restructured extended executor REXX
- Ruby
- Stac Software ReachOut
- Symantec pcAnywhere

Development environment software

- Ada
- Borland JBuilder
- C
- Common business oriented language COBOL
- Eclipse software
- Extensible markup language XML
- Formula translation/translator FORTRAN
- IBM Rational Rose XDE Developer
- Integrated development environment IDE software
- J
- Microsoft Visual Basic
- Microsoft Visual Basic Scripting Edition VBScript
- Microsoft Visual Studio
- Sun Microsystems Java 2 Platform Enterprise Edition J2EE
- Symantec Visual Caf

Enterprise application integration software

- Enterprise application integration EAI software
- WebFOCUS software

Enterprise resource planning ERP software

- Enterprise resource planning ERP software
- Oracle PeopleSoft
- SAP software

File versioning software

- Version control software

Financial analysis software

- Cost estimation software

Graphics or photo imaging software

- Graphics software

Helpdesk or call center software

- Help desk software

Internet directory services software

- Scheme
- Source code migration software
- String oriented symbolic language SNOBOL
- Symantec Visual Caf
- Tier generator software
- Web service definition language WDSL

Document management software

- Virage VS Archive

Enterprise resource planning ERP software

- Advanced business application programming ABAP

Graphical user interface development software

- Basis BBx VisualPRO/5
- Graphical user interface GUI development software

Object or component oriented development software

- BETA
- C++
- Categorical abstract machine language CAML
- Common extended self-containing prolog CESP
- DRAGOON software
- E++
- Eiffel
- Emerald
- Extended self-containing Prolog ESP
- Greatis Object Inspector
- Lisp object-oriented programming system LOOPS
- Microsoft Visual Basic.NET
- Microsoft Visual C# .NET
- Modula
- Oberon
- Objective-C
- Oblog
- Polka

- Active directory software

Metadata management software

- Data modeling software

Object or component oriented development software

- C++
- Component object model COM software
- Distributed component object model DCOM software
- DRAGOON software
- Eiffel
- Microsoft Visual Basic.NET
- Microsoft Visual C# .NET
- Object or component oriented development software
- Objective-C
- Practical extraction and reporting language Perl
- Python
- Rapide
- Smalltalk
- Sun Microsystems Java

Object oriented data base management software

- Microsoft Visual FoxPro

Operating system software

- Job control language JCL
- Personal computer diagnostic software

Pattern design software

- Diagramming software
- Flowchart software
- Omni Group OmniGraffle

Presentation software

- Presentation software

Program testing software

- Compatibility testing software
- Defect tracking software
- Dynamic analysis software

- PowerSoft PowerBuilder
- Practical extraction and reporting language Perl
- Python
- Sather
- Self
- Simulation language SIMULA
- Smalltalk
- Sun Microsystems Java

Object oriented data base management software

- Microsoft Visual FoxPro

Operating system software

- Bourne Shell
- Job control language JCL

Program testing software

- Debugging software
- Low-level debugger software
- Source code editor software
- Symbolic debugger software

Project management software

- Microsoft Project

Requirements analysis and system architecture software

- Unified modeling language UML

Spreadsheet software

- Microsoft Excel

Transaction server software

- Customer information control system CICS software

Web platform development software

- Adobe Systems Adobe Cold Fusion
- Adobe Systems Adobe Flex
- Apache Struts
- Asynchronous JavaScript and XML AJAX
- Cascading Style Sheets CSS
- Hypertext markup language HTML
- JavaScript

- Functional testing software
- IBM Rational PurifyPlus
- Integration testing software
- Interoperability testing software
- Load testing software
- Mercury Interactive LoadRunner
- Mercury Interactive WinRunner
- Migration testing software
- Mutation testing software
- Recovery testing software
- Regression testing software
- Security testing software
- Static analysis software
- Stress testing software
- System testing software
- Test design software
- Test implementation software
- Unit testing software
- Usability testing software

Project management software

- Project management software

Requirements analysis and system architecture software

- AcmeStudio
- Architecture description language ADL
- Popkin System Architect
- Requirements management software
- Unified modeling language UML
- Wright software

Spreadsheet software

- Microsoft Excel

Transaction security and virus protection software

- Virus scanning software

Transaction server software

- Apache software

Computer Programmers	Computer Systems Analysts
• Microsoft Active Server Pages ASP	• Customer information control system CICS software
• Microsoft ASP.NET	• Microsoft Internet Information Service IIS
• Microsoft Silverlight	• Sun Microsystems Sun ONE
• Microsoft Visual C#	• Web server software
• PHP: Hypertext Preprocessor	Web platform development software
• Ruby on Rails	• Adobe Systems Adobe Flex
• Sun Microsystems Java server pages JSP	• Allaire ColdFusion
Word processing software	• Cascading Style Sheets CSS
• Microsoft Word	• Hypertext markup language HTML
Tools - Examples	• JavaScript
• Computer servers	• Microsoft Active Server Pages ASP
• Desktop computers	• PHP: Hypertext Preprocessor
• Mainframe computers	• Ruby on Rails
• Serial port cards	Word processing software
	• Microsoft Word
	Tools - Examples
	• Desktop computers
	• Mainframe computers
	• Notebook computers
	• Personal digital assistants PDA

Labor Market Comparison

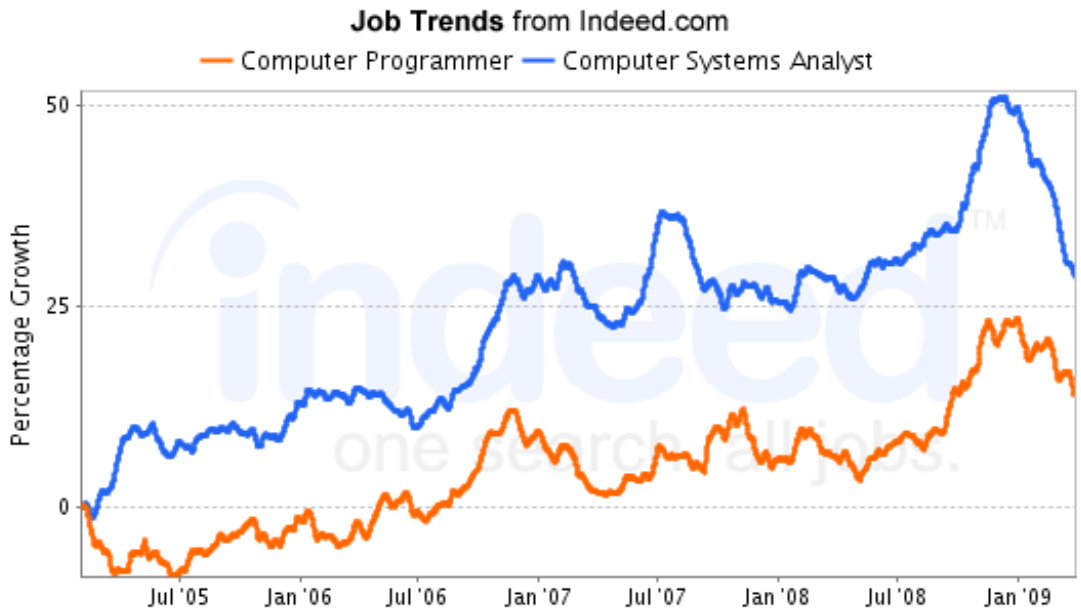
Description	Computer Programmers	Computer Systems Analysts	Difference
Median Wage	$ 58,240	$ 69,340	$ 11,100
10th Percentile Wage	$ 39,650	$ 46,370	$ 6,720
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	$ 77,420	$ 82,620	$ 5,200
90th Percentile Wage	$ 95,710	$ 98,420	$ 2,710
Mean Wage	$ 62,540	$ 70,010	$ 7,470
Total Employment - 2007	720	1,650	930
Employment Base - 2006	761	1,688	927
Projected Employment - 2016	670	2,019	1,349
Projected Job Growth - 2006-2016	-11.9 %	19.6 %	31.6 %

Projected Annual Openings - 2006-2016	16	78	62

National Job Posting Trends

Trend for Computer Programmers

Trend for Computer Systems Analysts



Data from Indeed

Recommended Programs

Computer and Information Sciences, General

Computer and Information Sciences, General. A general program that focuses on computing, computer science, and information science and systems as part of a broad and/or interdisciplinary program. Such programs are undifferentiated as to title and content and are not to be confused with specific programs in computer science, information science, or related support services.

Institution	Address	City	URL
University of Maine at Augusta	46 University Dr	Augusta	www.uma.maine.edu/
University of Maine at Augusta	46 University Dr	Augusta	www.uma.maine.edu/
University of Maine at Augusta	46 University Dr	Augusta	www.uma.maine.edu/
Husson College	One College Circle	Bangor	www.husson.edu
Husson College	One College Circle	Bangor	www.husson.edu
Thomas College	180 W River Rd	Waterville	www.thomas.edu
Thomas College	180 W River Rd	Waterville	www.thomas.edu

Information Technology

Information Technology. A program that focuses on the design of technological information systems, including computing systems, as solutions to business and research data and communications support needs. Includes instruction in the principles of computer hardware and software components, algorithms, databases, telecommunications, user tactics, application testing, and human interface design.

Institution	Address	City	URL
University of Maine		Orono	www.umaine.edu/

Computer Programming

Computer Programming/Programmer, General. A program that focuses on the general writing and implementation of generic and customized programs to drive operating systems and that generally prepares individuals to apply the methods and procedures of software design and programming to software installation and maintenance. Includes instruction in software design, low- and high-level languages and program writing; program customization and linking; prototype testing; troubleshooting; and related aspects of operating systems and networks.

Institution	Address	City	URL
Wasington County Community College	One College Drive	Calais	www.wccc.me.edu
Northern Maine Community College	33 Edgemont Dr	Presque Isle	www.nmcc.edu

Computer Systems Analysis

Computer Systems Analysis/Analyst. A program that prepares individuals to apply programming and systems analysis principles to the selection, implementation, and troubleshooting of customized computer and software installations across the life cycle. Includes instruction in computer hardware and software; compilation, composition, execution, and operating systems; low- and high-level languages and language programming; programming and debugging techniques; installation and maintenance testing and documentation; process and data flow analysis; user needs analysis and documentation; cost-benefit analysis; and specification design.

No schools available for the program

Web/Multimedia Management and Webmaster

Web/Multimedia Management and Webmaster. A program that prepares individuals to develop and maintain web servers and the hosted web pages at one or a group of web sites, and to function as designated webmasters. Includes instruction in computer systems and networks; server installation and maintenance; web page design and editing; information resources management; web policy and procedures; Internet applications of information systems security; user interfacing and usability research; and relevant management and communications skills.

No schools available for the program

Management Information Systems and Business Data P

Management Information Systems, General. A program that generally prepares individuals to provide and manage data systems and related facilities for processing and retrieving internal business information; select systems and train personnel; and respond to external data requests. Includes instruction in cost and accounting information systems, management control systems, personnel information systems, data storage and security, business systems networking, report preparation, computer facilities and equipment operation and maintenance, operator supervision and training, and management information systems policy and planning.

Institution	Address	City	URL
Kennebec Valley Community College	92 Western Ave	Fairfield	www.kvcc.me.edu
Kennebec Valley Community College	92 Western Ave	Fairfield	www.kvcc.me.edu
Andover College	901 Washington Ave	Portland	WWW.ANDOVERCOLLEGE.edu
Andover College	901 Washington Ave	Portland	WWW.ANDOVERCOLLEGE.edu
York County Community College	112 College Drive	Wells	www.yccc.edu

Maine Statewide Promotion Opportunities for Computer Programmers

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings
15-1021.00	Computer Programmers	100	4	720	$58,240.00	$0.00	-12%	16
15-1031.00	Computer Software Engineers, Applications	89	4	1,060	$63,750.00	$5,510.00	30%	47
15-1032.00	Computer Software Engineers, Systems Software	88	4	290	$73,410.00	$15,170.00	11%	8
15-1051.00	Computer Systems Analysts	86	4	1,650	$69,340.00	$11,100.00	20%	78
15-1061.00	Database Administrators	83	4	300	$60,260.00	$2,020.00	20%	11
15-1081.00	Network Systems and Data Communications Analysts	79	3	610	$59,790.00	$1,550.00	47%	54
15-2031.00	Operations Research Analysts	78	5	180	$64,140.00	$5,900.00	12%	6
11-3021.00	Computer and Information Systems Managers	78	5	870	$83,130.00	$24,890.00	8%	21
17-2071.00	Electrical Engineers	77	4	260	$73,050.00	$14,810.00	-10%	6
17-2072.00	Electronics Engineers, Except Computer	76	4	210	$76,420.00	$18,180.00	-26%	4
13-2051.00	Financial Analysts	76	4	210	$71,380.00	$13,140.00	10%	4
13-2052.00	Personal Financial Advisors	74	3	360	$94,100.00	$35,860.00	10%	13
17-2112.00	Industrial Engineers	73	4	580	$68,350.00	$10,110.00	11%	22
19-1041.00	Epidemiologists	73	5	20	$58,250.00	$10.00	20%	1
25-1054.00	Physics Teachers, Postsecondary	72	5	50	$68,770.00	$10,530.00	10%	2

Top Industries for Computer Systems Analysts

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Computer systems design and related services	541500	19.83%	99,858	148,307	48.52%
Management of companies and enterprises	551100	7.31%	36,812	46,680	26.81%

State government, excluding education and hospitals	929200	3.93%	19,805	21,378	7.94%
Self-employed workers, primary job	000601	3.87%	19,512	22,866	17.19%
Professional and commercial equipment and supplies merchant wholesalers	423400	3.66%	18,410	23,606	28.23%
Colleges, universities, and professional schools, public and private	611300	3.55%	17,889	22,014	23.06%
Local government, excluding education and hospitals	939300	3.34%	16,843	20,814	23.57%
Data processing, hosting, and related services	518200	3.24%	16,325	24,276	48.71%
Management, scientific, and technical consulting services	541600	3.17%	15,976	31,374	96.38%
General medical and surgical hospitals, public and private	622100	2.62%	13,193	16,066	21.78%
Federal government, excluding postal service	919999	2.45%	12,318	12,809	3.99%
Software publishers	511200	2.43%	12,256	17,359	41.63%
Depository credit intermediation	522100	2.21%	11,136	12,490	12.15%
Self-employed workers, secondary job	000602	1.90%	9,546	10,454	9.51%
Research and development in the physical, engineering, and life sciences	541710	1.70%	8,547	10,030	17.36%

Top Industries for Computer Programmers

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Computer systems design and related services	541500	30.52%	132,767	143,405	8.01%
Software publishers	511200	4.26%	18,545	19,103	3.01%
Management of companies and enterprises	551100	3.78%	16,457	15,177	-7.78%
Colleges, universities, and professional schools, public and private	611300	3.67%	15,950	14,275	-10.50%
Employment services	561300	2.94%	12,805	12,965	1.25%
Professional and commercial equipment and supplies merchant wholesalers	423400	2.83%	12,306	11,476	-6.75%
Self-employed workers, primary job	000601	2.61%	11,368	9,689	-14.77%
Data processing, hosting, and related services	518200	2.38%	10,362	11,206	8.15%
State government, excluding education and hospitals	929200	2.14%	9,330	7,325	-21.50%
Management, scientific, and technical consulting services	541600	1.92%	8,356	11,933	42.82%
Federal government, excluding postal service	919999	1.89%	8,206	6,206	-24.37%
Local government, excluding education and hospitals	939300	1.65%	7,193	6,464	-10.13%
Direct insurance (except life, health, and medical) carriers	524120	1.41%	6,151	5,143	-16.38%

Depository credit intermediation	522100	1.31%	5,698	4,648	-18.44%
Self-employed workers, secondary job	000602	1.31%	5,682	4,525	-20.36%